David C.Lee
Ohio Valley Pet Cemetery
2810 Cooper's Lane
Sellersburg, IN 47172

Dear David C.Lee:

Re: Exempt Construction and Operation Status,
019-12560-00044

The application from Ohio Valley Pet Cemetery, received on August 1, 2000, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following animal cremator unit, to be located at 2810 Cooper's Lane, Sellersburg, IN 47172, is classified as exempt from air pollution permit requirements:

One (1) crematory incinerator for animal remains with maximum capacity of 150 pounds per hour, supplemented by natural gas fuel at a rate of 1.7 million BTU per hour.

The following conditions shall be applicable:

(1) Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuos opacity monitor in a six (6) hour period.

(2) Pursuant to 326 IAC 4-2-2 this natural gas fired 1.7 million BTU per hour incinerator, rated at a capacity of 150 pounds per hour, shall:

(1) consist of primary and secondary chambers or the equivalent;
(2) be equipped with a primary burner unless burning wood products;
(3) comply with 326 IAC 5-1 and 326 IAC 2;
(4) be maintained properly as specified by the manufacturer and approved by the commissioner;
(5) be operated according to the manufacturer's recommendations and only burn waste approved by the commissioner;
(6) comply with other state and/or local rules or ordinances regarding installation and operation of incinerators;
(7) be operated so that emissions of hazardous material including, but not limited to, viable pathogenic bacteria, dangerous chemicals or gases, or noxious odors are prevented;

(8) not emit particulate matter in excess of five-tenths (0.5) pounds of particulate matter per one thousand (1,000) pounds of dry exhaust gas at standard conditions corrected to fifty percent (50%) excess air; and
(9) not create a nuisance or a fire hazard.

This exemption is the first air approval issued to this source.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Management (OAM) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Management

GS

cc: File - Clark County
Clark County Health Department
Air Compliance – Joe Foyst
Permit Tracking - Janet Mobley
Technical Support and Modeling - Michele Boner
Compliance Data Section - Karen Nowak

Indiana Department of Environmental Management
Office of Air Management

Technical Support Document (TSD) for an Exemption

Source Background and Description

Source Name: **Ohio Valley Pet Cemetery**
Source Location: **2810 Cooper's Lane, Sellersburg, Indiana 47172**
County: **Clark**
SIC Code: **6553**
Operation Permit No.: **019-12560-00044**
Permit Reviewer: **Gurinder Saini**

The Office of Air Management (OAM) has reviewed an application from Ohio Valley Pet Cemetery relating to the construction and operation of animal cremator unit.

Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

One (1) crematory incinerator for animal remains with maximum capacity of 150 pounds per hour, supplemented by natural gas fuel at a rate of 1.7 million BTU per hour.

Unpermitted Emission Units and Pollution Control Equipment

There are no unpermitted facilities operating at this source during this review process.

Existing Approvals

This is the first air approval for this applicant.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{0}F)
#2	#2 Cremator	17	1.7	2600	1000

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

A complete application for the purposes of this review was received on August 01, 2000.

Emission Calculations

See Appendix A page 1 of 1 of this document for detailed emissions calculations***.***

Potential To Emit of Source Before Controls

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency."

Pollutant	Potential To Emit (tons/year)
PM	2.3
PM-10	2.3
SO_2	0.8
VOC	1.0
CO	3.3
NO_x	1.0

(a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of ***any criteria pollutant is*** less than 10 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3.

(b) Fugitive Emissions
Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

County Attainment Status

The source is located in Clark County.

Pollutant	Status **(attainment, maintenance attainment, or unclassifiable; severe, moderate, or marginal nonattainment)**
PM-10	attainment
SO_2	attainment
NO_2	attainment
Ozone	Moderate
CO	attainment
Lead	attainment

(a) Volatile organic compounds (VOC) and oxides of nitrogen are precursors for the formation of ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to the ozone standards. Clark County has been designated as nonattainment for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3.

Source Status

New Source PSD Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (ton/yr)
PM	2.3
PM10	2.3
SO_2	0.8
VOC	1.0
CO	3.3
NO_x	1.0
Single HAP	-
Combination HAPs	-

(a) This new source is **not** a major stationary source because no attainment pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This new source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

(a) each criteria pollutant is less than 100 tons per year,
(b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
(c) any combination of HAPs is less than 25 tons/year.

This is the first air approval issued to this source.

Federal Rule Applicability

(a) The New Source Performance Standards (NSPS) is not subject to 326 IAC 12 (40 CFR Part 60.50, Subpart E) because the charge capacity is 1.8 tons per day which is less than 50 tons per day, the applicability threshold. There are no other NSPS (326 IAC 12 and 40 CFR Part 60) applicable to this source.

(b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this source.

State Rule Applicability - Entire Source

326 IAC 2-6 (Emission Reporting)

This source is located in Clark County and the potential to emit any criteria pollutant is less than ten (10) tons per year. Therefore, 326 IAC 2-6 does not apply.

326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability - Individual Facilities

326 IAC 4-2-2 (Incinerators: Requirements)

Pursuant to 326 IAC 4-2-2 (Incinerators: Requirements), All incinerators shall:

(1) consist of primary and secondary chambers or the equivalent;
(2) be equipped with a primary burner unless burning wood products;
(3) comply with 326 IAC 5-1 and 326 IAC 2;
(4) be maintained properly as specified by the manufacturer and approved by the commissioner;
(5) be operated according to the manufacturer's recommendations and only burn waste approved by the commissioner;
(6) comply with other state and/or local rules or ordinances regarding installation and operation of incinerators;
(7) be operated so that emissions of hazardous material including, but not limited to, viable pathogenic bacteria, dangerous chemicals or gases, or noxious odors are prevented;
(8) not emit particulate matter in excess of five-tenths (0.5) pounds of particulate matter per one thousand (1,000) pounds of dry exhaust gas at standard conditions corrected to fifty percent (50%) excess air; and
(9) not create a nuisance or a fire hazard.

Based on condition 8 above, allowable PM emissions are:

Allowable PM = 0.5 pounds per one thousand (1,000) pounds of dry exhaust gas at standard conditions. This is more than particulate emission calculation shown in Appendix A page 1 of 1. Hence this unit is in compliance with this rule.

326 IAC 6-1-1 (Nonattainment Area Particulate Limitations)

The natural gas fired incinerator is not subject to 326 IAC 6-1-1 (Nonattainment Area Particulate Limitations), because the source does not have the potential to emit one hundred (100) tons or more of particulate matter per year or have actual emissions of ten (10) tons or more of particulate matter per year.

326 IAC 9-1-1 (Carbon Monoxide Emission Limit)

The natural gas fired incinerator burns the waste gas stream in a secondary chamber, which is equipped with a secondary burner. This is equivalent to a direct flame after burner control. Therefore the incinerator complies with this rule.

326 IAC 10-1-1 (Nitrogen Oxide Rules)

The incinerator is located in Clark county. As the incinerator is an exempt unit and does not require permit under 326 IAC 2, therefore provisions of this rule does not apply.

Conclusion

The construction and operation of this animal cremator unit shall be subject to the conditions of the attached **Exemption 019-12560-00044.**

Appendix A

PM emission based on stack test

Power -Pak- II crematory incinerator was tested for particulate matter in May, 1994. The following are the findings for this test result.

Particulate emissions = 0.021 grain / dscf @ 7 % O_2

Flow rate of Flue gas = 2600 acfm
Temperature of flue gas = 1000°F

Standard flow rate of flue gas = 2600 * (460+77°F)/(460+1000°F)=956.3 scfm

Particulate emission=0.021 gr/dscf * 1 lb/7000 gr * 956.3 dscf / 1 minute * 60 min/1 hour

=0.17 lbs/hour
=4.08 lbs/day
=0.74 tons/year

Determination for 326 IAC 4-2-2

Oxygen level in flue gas = 10.6%
Nitrogen level in flue gas = 82.1%
CO level in flue gas = 0% (for complete combustion)
Density of flue gas = P/RT
R=54.5 ft lbf/lbm°R
P=2117lbf/ft^2
T=1000+460=1460°R

Density of flue gas =2117/(54.5*1460) = 0.0266 lbm/ft^3

% Excess air =(%O_2-0.5%CO)*100% / (0.264%N_2-%O_2+0.5%CO)
=(%O_2)*100% / (0.264%N_2-%O_2)
=(10.6)*100%/(0.264*82.1-10.6)
=96%

Correction factor for 50% excess air= (100+96)/150
=1.3

Particulate matter per pound of flue gas

=(0.17lbs/hour)/((2600 ft^3/minute)*0.0266 lbm/ft^3*60 min/hour)
=4.1*10^{-5} lb particulate matter / lb of flue gas

Particulate per 1000 pounds of flue gas at 50 % EA

=4.1*10^{-5}*1000 lb of flue gas * 1.3
=0.053 lbs of particulate matter per 1000 lbs of flue gas

Which is less than 0.5 lbs of particulate matter per 1000 lbs of flue gas as per 326 IAC 4-2-2. Thus the incinerator complies with this rule

Appendix A: Emission Calculations
Incinerator

Company Name: Ohio Valley Pet Cemetry
Address City IN Zip: 2810 Cooper's Lane, Sellersburg, IN 47172
CP: 019-12560
Plt ID: 019-00044
Reviewer: Gurinder Saini
Date: Aug 14, 2000

THROUGHPUT lbs/hr
150

THROUGHPUT ton/yr
657

	POLLUTANT				
	PM	SO2	CO	VOC	NOX
Emission Factor in lb/ton	7.0	2.5	10.0	3.0	3.0
Potential Emissions in ton/yr	2.3	0.8	3.3	1.0	1.0

Methodology

Emission factors are from AP 42 (5th Edition 1/95) Table 2.1-12, Uncontrolled emission factors for industrial/commercial refuse combustors, multiple chambers
Throughput (lb/hr) * 8760 hr/yr * ton/2000 lb = throughput (ton/yr)